SECTION II—CLAIMS

1. (Original) A method of automatic white balancing comprising:

(a) determining an illuminant source by identifying a predefined white area of a color space diagram having a highest number of pixels;

(b) calculating an average R value, an average G value, and an average Blue value of said pixels; and

(c) determining a gain adjustment based on said average R value, said average G value, and said average B value.

2. (Original) The method of claim 1, wherein said pixels are white pixels.

3. (Original) The method of claim 2, further including the step of calculating a G/R ratio and a G/B ratio of said pixels.

4. (Original) The method of claim 3, wherein said G/R ratio and said G/B ratio of said pixels are plotted on said color space diagram.

5. (Original) The method of claim 4, wherein said R value, said G value, and said B value are accumulated for said pixels.

6. (Original) A method of identifying an illuminant source of a captured image for automatic white balance comprising:

(a) calculating a G/R ratio and a G/B ratio for a pixel of said captured image;

(b) plotting said G/R ratio and said G/B ratio in a color space diagram; and

(c) determining a predefined white area of said color space diagram having a highest number of said pixels, which is indicative of said illuminant source of said captured image.

7. (Original) The method of claim 7, wherein said pixels are white pixels.

8. (Original) A method of determining a gain adjustment for automatic white balance comprising:

(a) calculating an average R value, an average G value, and an average Blue value of a pixel of a captured image; and

(b) determining a gain adjustment based on said average R value, said average G value, and said average B value.

9. (Original) The method of claim 8, wherein said pixel is a plurality of selected white pixels of a predefined white area.

10. (Original) A method of automatic white balancing comprising:

(a) calculating a G/R ratio and a G/B ratio for a pixel;

(b) plotting said G/R ratio and said G/B ratio in a color space diagram;

(c) accumulating a R value, a G value, and a Blue value for each said pixel that has said G/R ratio and said G/B ratio inside a predefined white area of said color space diagram;

(d) determining an illuminant source by identifying said predefined white area containing a highest number of said pixels;

(e) calculating said R value average, said G value average, and said B value average; and

(f) determining a gain adjustment based on said R value average, said G value average, and said B value average.

11. (Original) A method of predefining a white area in a color space diagram for automatic white balance comprising:

(a) calculating a G/R ratio and a G/B ratio for a white color block;

(b) repeating step (a) for each illuminant type; and

(c) determining a white area for each said illuminant type based on said G/R ratio and said G/B ratio for said white color block.

12. (Original) The method of claim 11, further including a plurality of color blocks of different colors.

13. (Original) The method of claim 12, wherein said color blocks including a plurality of gray color blocks of different shades.

14. (Original) The method of claim 13, wherein steps (a) and (b) are repeated for each of said gray color block.

15. (Original) The method of claim 14, wherein said white area is defined by said G/R ratio and said G/B ratio of said white color block and said gray color blocks.

16. (Original) A method of predefining a white area in a color space diagram for automatic white balancing comprising:

(a) using a color chart having a plurality of color blocks including a white, a gray 1, a gray 2, a gray 3, a gray 4, and a black color block under a target illuminant source;

(b) calculating a G/R ratio and a G/B ratio for each said color block;

(c) plotting said G/R ratio and said G/B ratio of each said color block on said color space diagram;

(d) defining said white area on said color space diagram for said target illuminant source based upon said G/R ratio and said G/B ratio for said white, said gray 1, said gray 2, said gray 3, and said gray 4 color blocks; and

(e) repeating steps (a) through (c) for each said target illuminant source.

17. (Original) An apparatus for automatic white balance comprising:

(a) an area selection module for determining a predefined white area of a color space diagram for a pixel;

(b) an accumulate for averaging module for storing a R value, a G value, and a Blue value of said pixel; and

(c) a decide gain value module for determining a gain adjustment.

18. (Original) The method of claim 17, wherein said area selection module calculates a G/R ratio and a G/B ratio of said pixel.

19. (Original) The method of claim 18, wherein said area selection module analyzes said predefined white area to identify said predefined white area having a highest number of said pixel, which is indicative of said illuminant source.

20. (Original) The method of claim 19, wherein said decide gain value module calculates an average R value, an average G value, and an average B value of said pixel for said gain adjustment for a color channel.